



Testing planktic foraminiferal shell weight as a surface water [CO₂] proxy using plankton net samples

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Résumé en anglais	<p>Planktic foraminiferal size-normalized weight (SNW) has been used as a proxy for both past changes in deepwater dissolution and surface ocean [CO₂], the latter potentially providing a way to evaluate paleoatmospheric pCO₂ variations beyond the ice core records. Here we examine the relationship between SNW in modern planktic foraminifera and surface water [CO₂] in the Arabian Sea using a suite of samples obtained from plankton net casts in surface waters having a large range in their carbon chemistry. Our results reveal substantial interspecies-and intraspecies-specific variations in the strength, gradient, and even sign of this relationship, indicating that [CO₂] does not exert a dominant control on foraminiferal test weight. Similarly, foraminiferal abundance data do not lend support to the hypothesis that SNW responds to optimal growth conditions. Further work is needed, perhaps in laboratory cultures, to determine those environmental factors that are simply correlated with SNW and those that exert control.</p>
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